

ABSTRACT

This invention presents methods and systems for generating and handling a harmonized network of points. More generally, this invention reorganizes and optimizes a network of points in terms of spatial distribution regularity. Implementations may allow users to manipulate the network of points while maintaining the organization of the network of points. The network of points can define a surface, which can include Béziers and Nurbs three-dimensional surfaces. The surface can be used in a CAD system.

In one aspect of this invention, a smoothing algorithm is applied to the surface adjusting internal points in the network based on the extremity points. Local planes are detected in the network, and if available, are used to further smooth the internal points in the network. In another aspect of this invention, local planes are detected in the network, and if available, are used to constrain internal points in the network.